

## DY 29: Invited Talk Eric Bertin

Time: Wednesday 12:00–12:30

Location: H18

**Invited Talk**

DY 29.1 Wed 12:00 H18

**Derivation of a continuum description of sheared jammed soft suspensions from particle dynamics** — •ERIC BERTIN, NICOLAS CUNY, and ROMAIN MARI — Univ. Grenoble Alpes, CNRS, LIPhy, 38000 Grenoble, France

Jammed soft suspensions exhibit a rich phenomenology under deformation, including the existence of a yield stress and non-monotonous stress relaxations. Starting from the microscopic particle dynamics, we derive using a set of approximations a continuum description in terms of the macroscopic stress tensor (or more precisely, its traceless part)

for given applied time-dependent deformations. The coefficients appearing in this equation are expressed in terms of the packing fraction and of particle-level parameters. This constitutive equation rooted in the microscopic dynamics qualitatively reproduces a number of salient features of the rheology of jammed soft suspensions, including the presence of yield stresses for both the shear component of the stress and the normal stress difference. Time-dependent protocols like the relaxation after a preshear are also considered, showing that a stronger preshear eventually leads to a more relaxed stress. This new methodology opens avenues for future developments, and involves physically more transparent approximations than the Mode Coupling approach.